

Notice of Allowability

Application No.

10/049,902

Examiner

Ngoc-Yen M. Nguyen

Applicant(s)

SHIBASAKI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendments file 12/28 and 12/29/2005.
2. ☒ The allowed claim(s) is/are 1-19.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 28, and December 29, 2005 has been entered.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Daniel Evans on March 14, 2006.

The application has been amended as follows:

Claim 1 (Currently Amended): An amorphous fine silica particle made by flame hydrolysis of a silicon compound, wherein said silica particle has an average particle diameter (median diameter) of from 0.1 to 0.7 μm , a specific surface area by BET of from 5 to 30 m^2/g , and a dispersion coefficient (z) ranges from ~~about~~ 31% to less than 40% as shown in the following formula [I],

$$z = (Y/2X) \times 100\% \quad [I]$$

wherein X is a median size, Y is a particle size range which is from 10% to 90% of an accumulative particle size.

Claim 2 (Previously Presented): A filler of an epoxy molding compound, comprising the amorphous fine silica particle according to Claim 1.

Claim 3 (Previously Presented): A filler for anti-blocking of a plastic film or sheet, comprising the amorphous fine silica particle according to Claim 1.

Claim 4 (Previously Presented): An external additive for a toner, comprising the amorphous fine silica particle according to Claim 1.

Claim 5 (Previously Presented): A surface protection layer or an electric charge transportation layer of a photo conductor of an electronic photograph, comprising the amorphous fine silica particle according to Claim 1.

Claim 6 (Currently Amended): An amorphous fine silica particle made by a flame hydrolysis of a silicon compound, wherein said silica particle has an average particle diameter (median size) of from 0.1 to 0.7 μm , a specific surface area by BET of from 5 to 30 m^2/g , a dispersion coefficient (z) ranges from about 31% to less than 40% as shown in the following formula [I], and an absolute value of triboelectrostatic charge to the specific surface area by BET is more than 20 $\mu\text{C}/\text{m}^2$

$$z = (Y/2X) \times 100\% \quad [I]$$

wherein X is a median size, Y is a particle size range which is from 10% to 90% of an accumulative particle size.

Claim 7 (Previously Presented): The amorphous fine silica particle according to Claim 6, wherein said silica particle is surface-treated with a silane coupling agent, an organo-polysiloxane or a combination thereof.

Claim 8 (Original): The amorphous fine silica particle according to Claim 6, wherein said silica particle is surface-treated by a dry method.

Claim 9 (Previously Presented): A development agent for an electronic photograph, comprising the amorphous fine silica particle according to Claim 6.

Claim 10 (Previously Presented): A surface protection layer material of a photoconductor, comprising the amorphous fine silica particle according to Claim 6.

Claim 11 (Previously Presented): A material of an electric charge transportation layer, comprising the amorphous fine silica particle according to Claim 6.

Claim 12 (Currently Amended): A process for producing an amorphous fine silica particle, said process comprising

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leading a gaseous silicon compound into a flame to be hydrolyzed to form said particle,

maintaining said silica particle for a time at a temperature greater than the melting point of silica, and

forming said amorphous fine silica particle having an average particle diameter (median size) of from 0.1 to 0.7 μm and a specific surface area of from 5 to 30 m^2/g , a dispersion coefficient (z) ranges from ~~about~~ 31% to less than 40% as shown in the following formula [I],

$$z = (Y/2X) \times 100\% \quad [I]$$

wherein X is a median size, Y is a particle size range which is from 10% to 90% of an accumulative particle size;

wherein a flame temperature is greater than the melting point of silica and a silica concentration in the flame (v) is more than $0.25\text{kg}/\text{Nm}^3$.

Claim 13 (Previously Presented): The process according to Claim 12, wherein the silica concentration in the flame (v) is from 0.25 to $1.0\text{kg}/\text{Nm}^3$.

Claim 14 (Previously Presented): The process according to Claim 12, wherein a residence time (t) in the flame of the silica particle is from 0.02 to 0.30 seconds.

Claim 15 (Previously Presented): The process according to Claim 12, further comprising,

controlling a specific surface area (S), a median size (r), a silica concentration in the flame (v), and a staying time in the flame (t), according to the following formula [II] or [III], respectively.

$$S = 3.52 (v \cdot t)^{-0.4} \quad [II]$$

$$r = 1.07 (v \cdot t)^{0.4} \quad [III]$$

Claim 16 (Currently Amended): A filler of an epoxy molding compound, comprising the amorphous fine silica particle according to Claim 1 wherein the dispersion coefficient (z) ranges from ~~about~~31% to ~~about~~35%.

Claim 17 (Currently Amended): A filler for anti-blocking of a plastic film or sheet, comprising the amorphous fine silica particle according to Claim 1 wherein the dispersion coefficient (z) ranges from ~~about~~31% to ~~about~~35%.

Claim 18 (Currently Amended): An external additive for a toner, comprising the amorphous fine silica particle according to Claim 1 wherein the dispersion coefficient (z) ranges from ~~about~~31% to ~~about~~35%.

Claim 19 (Currently Amended): A surface protection layer or an electric charge transportation layer of a photo conductor of an electronic photograph, comprising the amorphous fine silica particle according to Claim 1 wherein the dispersion coefficient (z) ranges from ~~about~~31% to ~~about~~35%.

The following is an examiner's statement of reasons for allowance: the prior art does not teach or suggest an amorphous fine silica particle made by flame hydrolysis of a silicon compound, wherein said silica has a dispersion coefficient (z) ranges from 31% to less than 40%. Suzuki '247 as applied in previous office action only suggests the silica to be monodisperse, this suggests that the "z" value would be close to zero, not in the claimed range of the instant claims.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 or (571) 273-8300.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.


Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1754

nmn
March 14, 2006